DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 September 2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-62 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 4 is objected to because of the following informalities: The claim recites "a data setting unit", while claim 1 from which claim 4 depends already recites "a data setting unit", thus claim 4 should be changed to "the data setting unit" since there is not support in the specification for 2 data setting units. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4 and 9, the claims recite the limitation "a data setting unit that sets one of a number of times the identified input signal is checked, a time required to check the identified input signal, and a position of the identified input signal to be checked within a sequence of identified input signals to be checked" and then recites the limitation " wherein if the signal checking unit has not checked one of the number of set times whether the identified input signal is abnormal and has not checked for the period of set time…", which makes the claims unclear because first the claim is giving the examiner the choice between a data setting unit that either sets a number of time, a time required to check or a position of the signals, and then the claim states that "if...the number of set times…the period of set time", which makes the claim appear that the examiner does not have a choice and that the claim must perform all three of the options. Therefore, the claim is indefinite because the examiner is unsure whether the applicant has intended to claim that the data setting unit does all three or only has to do one of the three.

For the purpose of examination the examiner will assume that the applicant intended for only one of the three to be performed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-19, 22-33 and 36-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. (US 5,276,436) in view of Sakuda et al. (US 5,886,545).

Regarding claim 1, Shaw et al. disclose a display device (Figure 3) comprising:

a signal identifying unit that receives an input signal and identifies the type of the input signal (Figure 3 shows analog multiplex unit 34, which receives an input signal.);

a signal checking unit checking whether the identified input signal is abnormal (Figures 3 and 6 and column 9, lines 48-53 explain that the microprocessor 36 checks the received input signal from the multiplex unit to determine if there is a horizontal synchronizing signal present or not, where no synchronizing signal means that the input signal is “abnormal”.); and

a signal changing unit that switches from the checked input signal to a next input signal to be checked so that the signal checking unit checks whether the next input signal is abnormal, if the identified input signal is determined to be abnormal (Figure 3 and 6 and column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present, i.e. if it is abnormal, and then the next input signal will be checked for the synchronizing signals to see whether that signal is "abnormal".).

Shaw et al. fail to teach of a data setting unit that sets data corresponding to a user input regarding the received input signal, the set data representing how to check the identified input signal, and that the signal changing unit switches based on the set data.

Sakuda et al. disclose a display device comprising

a data setting unit that sets data corresponding to a user input regarding a received input signal, the set data representing how to check the identified input signal (Figure 1, where column 3, lines 16-20 and 35 to column 4, line 11 explain that there is a switch 9, i.e. a data setting unit, that sets the priority level of the port, i.e. data, and

this priority data represents which order to check the ports, i.e. it represents how to check the signals.), and

a signal changing unit that switches from one signal to a next based on the set data (Figure 1 and column 3, line 35 to column 4, line 3 explain that the ports are switched to check signals based upon the priority data set by the user.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teaching of Sakuda et al. to allow a user to set priority to the ports taught by Shaw et al. in order to allow the user control over the checking of the ports.

Regarding claim 2, Shaw et al. and Sakuda et al. et al. disclose the display device of claim 1.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is one of a D-sub analog signal, a DVI analog signal, a DVI digital signal, and a VIDEO signal (Figure 1 shows a D-sub signal.).

Regarding claim 3, Shaw et al. and Sakuda et al. disclose the display device of claim 1.

Shaw et al. also disclose wherein the signal checking unit checks whether the identified input signal is abnormal by one of decoding the identified input signal and sensing whether an input signal cable is connected to the display device (Column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to

a next input signal to be checked if no synchronizing signal is present. If there is no cable connected, there will be no synchronizing signal and thus the checking unit will sense whether or not there is a cable connected.).

Regarding claim 4, Shaw et al. and Sakuda et al. disclose the display device of claim 1.

Sakuda et al. discloses a data setting unit that sets one of a number of times the identified input signal is checked, a time required to check the identified input signal, and a position of the identified input signal to be checked within a sequence of identified input signals to be checked (As explained above, the user can set a priority to the ports and thus determines a position of the ports, i.e. signals, to be checked within a sequence of the ports.),

wherein if the signal checking unit has not checked one of the number of set times whether the identified input signal is abnormal and has not checked for the period of set time whether the identified input signal is abnormal, the signal checking unit continues checking whether the identified input signal is abnormal (Since the option is given above and the examiner chose the "position" option, then Sakuda does not need to teach this limitations because the "number of times" and the "time required to check" limitations do not exist in the claim after the "position" option is chosen.).

Regarding claim 5, Shaw et al. and Sakuda et al. disclose the display device of claim 4.

Sakuda et al. also disclose the display device further comprising a signal controlling unit that checks the position of the checked input signal within the sequence of identified input signals to be checked to determine which identified input signal is to be checked after the checked input signal, wherein the signal changing unit switches from the checked input signal to the determined input signal so that the signal checking unit checks whether the determined input signal is abnormal (As explained above, the position is checked based upon the user priority setting, and thus one port is checked first and then if the signal is abnormal then the next port is checked.).

Regarding claim 6, this claim is rejected under the same rationale as claim 1.

Regarding claim 7, this claim is rejected under the same rationale as claim 2.

Regarding claim 8, this claim is rejected under the same rationale as claim 3.

Regarding claim 9, this claim is rejected under the same rationale as claim 4.

Regarding claim 10, this claim is rejected under the same rationale as claim 5.

Regarding claim 11, please refer to the rejection of claim 1, and furthermore Shaw et al. also disclose

wherein if the checked input signal is normal, the signal continues being displayed by the display device and if the checked input signal is abnormal, the signal stops being displayed by the display device (Column 9, lines 43-64 explain that if the signal is "abnormal", then the next input signal is checked, which means that the signal will be stopped from being displayed by the display device. Column 6, lines 21-51 and column 9, line 65 through column 10, line 19 state that when a signal is determined to be "normal" then the signal is passed and displayed on the display device.).

Regarding claim 12, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. also disclose wherein the identified input signal and the next input signal are abnormal if cables carrying the signals are not connected to the display device (Column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present. If there is no cable connected, there will be no synchronizing signal and thus the checking unit will sense there is not a cable connected.).

Regarding claim 13, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Sakuda et al. also disclose wherein the identified input signal and the next input signal are abnormal if H-sync and V-sync patterns associated with the signals are abnormal (Column 3, line 50 to column 4, line 3.).

Regarding claim 14, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is a D-sub analog signal (Figure 1).

Regarding claim 15, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to explicitly teach wherein the signal identifying unit identifies whether the received input signal is a DVI analog signal, however, DVI analog signals are well known in the art, therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made that one of the signals identified by Shaw et al. and Sugihara et al. could be a DVI analog signal.

Regarding claim 16, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to explicitly teach wherein the signal identifying unit identifies whether the received input signal is a DVI digital signal, however, DVI digital signals are well known in the art, therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made that one of the signals identified by Shaw et al. and Sugihara et al. could be a DVI digital signal.

Regarding claim 17, Shaw et al. and Sakuda et al. disclose the display device of claim 1.

Sakuda et al. also disclose wherein the signal identifying unit identifies whether the received input signal is a VIDEO signal (Figure 1 shows signals from a BNC connector, which are video signals.).

Regarding claim 18, Shaw et al. and Sakuda et al. disclose the display device of claim 1.

Shaw et al. also disclose wherein the signal checking unit checks whether the identified input signal is abnormal by decoding the identified input signal (Column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present. If there is no cable connected, there will be no synchronizing signal and thus the checking unit will sense whether or not there is a cable connected.).

Regarding claim 19, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. also disclose wherein the signal checking unit checks whether the identified input signal is abnormal by sensing whether an input signal cable is connected (Column 9, lines 53-64 explain that the microprocessor tells the analog multiplex unit 34 to switch to a next input signal to be checked if no synchronizing signal is present. If

there is no cable connected, there will be no synchronizing signal and thus the checking unit will sense whether or not there is a cable connected.).

Regarding claim 22, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Sakuda et al. also disclose the display device further comprising a data setting unit that sets the position of the identified input signal to be checked within a sequence of identified input signals to be checked (As explained above, the user can set a priority to the ports and thus determines a position of the ports, i.e. signals, to be checked within a sequence of the ports.).

Regarding claim 23, Shaw et al. and Sakuda et al. disclose the display device of claim 22.

Sakuda et al. also disclose the display device further comprising a signal controlling unit that checks the position of the checked input signal within the sequence of identified input signals to be checked to determine which identified input signal is to be checked after the checked input signal, wherein the signal changing unit switches from the checked input signal to the determined input signal so that the signal checking unit can check whether the determined input signal is abnormal (As explained above, the position is checked based upon the user priority setting, and thus one port is checked first and then if the signal is abnormal then the next port is checked.).

Regarding claim 24, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Sakuda et al. also disclose the display device further comprising a menu from which a user determines the identified input signal is to be checked and a checking order (Column 3, lines 15-20 explain that there can be an on-screen display, i.e. a menu, for the user to select the priority, i.e. order to checking the signals.).

Regarding claim 25, this claim is rejected under the same rationale as claim 11.

Regarding claim 26, this claim is rejected under the same rationale as claim 14.

Regarding claim 27, this claim is rejected under the same rationale as claim 15.

Regarding claim 28, this claim is rejected under the same rationale as claim 16.

Regarding claim 29, this claim is rejected under the same rationale as claim 17.

Regarding claim 30, this claim is rejected under the same rationale as claim 12.

Regarding claim 31, this claim is rejected under the same rationale as claim 13.

Regarding claim 32, this claim is rejected under the same rationale as claim 18.

Regarding claim 33, this claim is rejected under the same rationale as claim 19.

Regarding claim 36, this claim is rejected under the same rationale as claim 22.

Regarding claim 37, this claim is rejected under the same rationale as claim 23.

Regarding claim 38, this claim is rejected under the same rationale as claim 24.

Regarding claim 39, this claim is rejected under the same rationale as claim 25.

Regarding claim 40, please refer to the rejection of claim 1, and furthermore Sakuda et al. also disclose wherein at least one of the input ports has priority in an order of checking by the signal changing unit as compared to another input port, wherein at least one of the input ports can be set to have a priority in an order of checking by the signal checking unit as compared to another input port (Figure 1, where column 3, lines 16-20 and 35 to column 4, line 11 explain that a user sets the priority level of the ports, and this priority data represents which order to check the ports, and thus one port can be set by a user to have a priority in the order of checking over another port.).

Regarding claim 41, Shaw et al. and Sakuda et al. disclose the displaying device of claim 40.

Sakuda et al. also disclose wherein the order of checking of the input port is selected among a plurality of checking orders (Since each port can be selected to have a priority then the order is one of a plurality.).

Regarding claim 42, Shaw et al. and Sakuda et al. disclose the displaying device of claim 41.

Sakuda et al. also disclose wherein the checking order is set by the user (As explained above, the user controls the switch 9 or on-screen display menu to select the priority of the ports.).

Regarding claim 43, Shaw et al. and Sakuda et al. disclose the displaying device of claim 42.

Sakuda et al. also disclose wherein a menu is provided on a screen of the displaying device to set the checking order (Column 3, lines 17-20).

Regarding claim 44, this claim is rejected under the same rationale as claim 17.

Regarding claim 45, this claim is rejected under the same rationale as claim 18.

Regarding claim 46, Shaw et al. and Sakuda et al. disclose the displaying device of claim 40.

Shaw et al. also disclose wherein the displaying device is capable of displaying a computer signal (Figure 3, element 21 is a computer, which are capable of display on the active matrix panel 16.).

Regarding claims 47 and 48, please refer to the rejection of claim 1, and furthermore Sakuda et al. also disclose an analog input fort for receiving an analog signal and a digital input port for receiving a digital signal (Figure 1 shows that there is a Dsub port and a BNC port, where the Dsub port is for receiving an analog signal and the BNC connector is for receiving both analog and digital signals, meaning that it is for receiving digital signals.), and that the switching occurs between the analog and digital ports (Figure 1 and column 3, lines 16-20 and 35 to column 4, line 11.).

Regarding claim 49, this claim is rejected under the same rationale as claim 40.

Regarding claim 50, this claim is rejected under the same rationale as claim 14.

Regarding claim 51, this claim is rejected under the same rationale as claim 15.

Regarding claim 52, this claim is rejected under the same rationale as claim 16.

Regarding claim 53, this claim is rejected under the same rationale as claim 17.

Regarding claim 54, this claim is rejected under the same rationale as claim 18.

Regarding claim 55, this claim is rejected under the same rationale as claim 13.

Regarding claim 56, this claim is rejected under the same rationale as claim 41.

Regarding claim 57, this claim is rejected under the same rationale as claim 42.

Regarding claim 58, this claim is rejected under the same rationale as claim 43.

Regarding claim 59, this claim is rejected under the same rationale as claim 4.

Regarding claim 60, this claim is rejected under the same rationale as claim 4.

Regarding claim 61 and 62, these claims are rejected under the same rationale as claim 3.

9. Claims 20-21 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. (US 5,276,436) in view of Sakuda et al. (US 5,886,545) and further in view of Yamashita et al. (US 5,808,693).

Regarding claim 20, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to teach the display device further comprising a data setting unit that sets the number of times the identified input signal is checked, wherein if the signal checking unit has not checked the number of set times, the signal checking unit continues the checking.

Yamashita et al. disclose a display device comprising a data setting unit that sets the number of times an identified input signal is checked, wherein if a signal checking unit has not checked the number of set times, the signal checking unit continues the checking (As shown in Figure 2 the number of times the input signal is checked is 1, so when it hasn't been checked it is checked and after it is checked once it moves on to the next input signal.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Yamashita et al. in the display device taught by the combination of Shaw et al. and Sakuda et al. in order to allow for enough time to check whether the input signal is the correct input signal or not.

Regarding claim 21, Shaw et al. and Sakuda et al. disclose the display device of claim 11.

Shaw et al. and Sakuda et al. fail to teach the display device further comprising a data setting unit that sets the time required to check the identified input signal, wherein

if the signal checking unit has not checked the identified input signal for the set period of time, the signal checking unit continues checking whether the identified signal is abnormal.

Yamashita et al. discloses a display device comprising a data setting unit that sets the time required to check the identified input signal (Figure 2 shows that a timer is set for checking the identified input signal),

wherein if the signal checking unit has not checked the identified input signal for the set period of time, the signal checking unit continues checking whether the identified signal is abnormal (Column 6, lines 1-32 and Figures 2 and 3 shows that the process repeats for checking the input signal abnormality.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Yamashita et al. in the display device taught by the combination of Shaw et al. and Sakuda et al. in order to allow for enough time to check whether the input signal is the correct input signal or not.

Regarding claim 34, this claim is rejected under the same rationale as claim 20.

Regarding claim 35, this claim is rejected under the same rationale as claim 21.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hanai (US 5,541,670) discloses a connector having three input/output ports in which the priority of the ports can be set.

Kim et al. (US 5,572,263) disclose a video signal selection circuit which reads the connection state of the ports and selectively connecting only ports that have an input connected to them.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9 October 2008